
Name of Organization: International Intervals, Inc.

Type of Organization: Other

Contact Information: Mr. JAY WEBBER

ENVIRONMENTAL DIVISION

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Project Title: Leachate Treating and Recycling Project: Chippewa Cty

Project Category: Contaminated Sediments

Rank by Organization (if applicable): 1

Total Funding Requested (\$): 201,719 **Project Duration:** 1.5 Years

Abstract:

SANITARY LANDFILLS ROUTINELY COLLECT AND PROCESS SIGNIFICANT VOLUMES OF AQUEOUS LEACHATE, GATHERED THROUGH DEDICATED UNDERGROUND LEACHATE COLLECTION SYSTEMS. THIS LEACHEATE IS GENERALLY CONTAMINATED WITH LOW LEVELS OF HEAVY METALS, HYDROCARBONS AND OTHER TRACE POLLUTANTS. LANDFILL LEACHEATE IS NORMALLY TRANSFERRED TO LOCAL WASTEWATER TREATMENT FACILITIES, WHICH ARE DESIGNED PRIMARILY FOR BIOLOGICAL TREATMENT OF WASTES BEFORE DISCHARGE INTO THE WATER SHED OF THE GREAT LAKES. THROUGH THIS PROJECT, INTERNATIONAL INTERVALS INC. (I.I.I.) PROPOSES TO CONDUCT A LANDFILL LEACHATE RECYCLING PROJECT IN CHIPPEWA COUNTY, MICHIGAN. IT IS DESIGNED TO DEMONSTRATE THE EFFECTIVENESS OF ENZYMATIC TREATMENT AND SUBSEQUENT LAND APPLICATION OF THE TREATED LEACHATE. THROUGH THIS MODEL TREATMENT AND RECYCLING FACILITY, TREATED LANDFILL LEACHATE WILL BE EVALUATED FOR USE IN PLANT AND AGRICULTURAL APPLICATIONS, AND THE QUANTITIES OF POLLUTANTS DELIVERED TO THE STREAMS, RIVERS AND WATERWAYS OF THE REGION WILL BE REDUCED. A RIGOROUS SAMPLING AND TESTING REGIME WILL INSURE COMPLIANCE WITH APPLICABLE REGULATIONS AND PROTECTION OF THE GREAT LAKES ENVIRONMENT.

Geographic Areas Affected by the Project

States:

<input checked="" type="checkbox"/> Illinois	<input type="checkbox"/> New York
<input checked="" type="checkbox"/> Indiana	<input type="checkbox"/> Pennsylvania
<input checked="" type="checkbox"/> Michigan	<input checked="" type="checkbox"/> Wisconsin
<input checked="" type="checkbox"/> Minnesota	<input type="checkbox"/> Ohio

Lakes:

<input type="checkbox"/> Superior	<input type="checkbox"/> Erie
<input type="checkbox"/> Huron	<input type="checkbox"/> Ontario
<input type="checkbox"/> Michigan	<input checked="" type="checkbox"/> All Lakes

Geographic Initiatives:

<input type="checkbox"/> Greater Chicago	<input type="checkbox"/> NE Ohio	<input type="checkbox"/> NW Indiana	<input type="checkbox"/> SE Michigan	<input type="checkbox"/> Lake St. Clair
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Primary Affected Area of Concern: All AOCs

Other Affected Areas of Concern: THE GREAT LAKES

For Habitat Projects Only:

Primary Affected Biodiversity Investment Area:

Other Affected Biodiversity Investment Areas:

Problem Statement:

THE LEACHATE WATER COLLECTED FROM LANDFILLS IS CONTAMINATED WITH VOLATILES, PHENOLS, NITRATES, NITRITES, HEAVY METALS, ETC.. THIS LEACHATE CURRENTLY IS SENT TO WASTEWATER TREATMENT FACILITIES, (IN MOST CASES) THE BACTERIAL TOWERS OF THESE FACILITIES CARRY A HEAVY BURDEN SEPARATING THESE CONTAMINATES. IN MOST CASES THERE IS STILL A VERY HIGH NITROGEN LEVEL LEFT IN THE EFFLUENTS RELEASED INTO OUR WATERWAYS. THESE OBVIOUSLY LEAD TO ALGAE GROWTH AND DESTRUCTION OF THESE TRIBUTARIES.

Proposed Work Outcome:

THIS PROJECT WILL DEMONSTRATE THAT CONTAMINATED LEACHATE CAN BE SAFELY TREATED ON THE LANDFILL SITE. THE TREATED LEACHATE CAN BE STORED AND RECYCLED TO MANY DIFFERENT PLANT AND AGRICULTURE APPLICATIONS. IN THE FUTURE, THE RESULTS OF THIS MODEL COULD SIGNIFICANTLY REDUCE THE NEGATIVE AFFECTS ON OUR WASTEWATER TREATMENT FACILITIES AND THE BURDEN OF TREATED EFFLUENTS ON THE GREAT LAKES WATER SHED. THE MAJOR COMPONENTS OF THIS PROJECT ARE AS FOLLOWS:

CONSTRUCT TWO CELLS TO COLLECT, TREAT AND STORE LEACHATE.

PIPE LEACHATE FROM EXISTING SYSTEM TO TREATMENT CELL. THIS CELL NEEDS A 60 MIL LINER COVERED WITH AT LEAST 1 FOOT OF CLAY. A CIRCULATION SYSTEM AND A AERATION SYSTEM WILL BE NEEDED FOR THIS CELL.

INSTALL A SECOND CELL TO STORE THE TREATED EFFLUENT. THIS CELL WILL REQUIRE A LIFT PUMP.

THE LEACHATE WILL BE TREATED WITH A NON-BACTERIAL ENZYME APPLICATION THAT HAS BEEN SHOWN PREVIOUSLY TO REMOVE HEAVY METALS, VOLITALE, FATS, OILS, AND GREASES, WITH LITTLE EFFECTS ON NITROGENS. THIS TREATED LEACHATE WILL BE AVAILABLE TO FERTILIZE PLANTS , FARMLAND, WEAK SOILS, ETC.

LAKE SUPERIOR STATE UNIVERSITY SCIENCE DEPARTMENT FACULTY AND STUDENTS HAVE AGREED TO PARTICIPATE IN SAMPLING AND TESTING OF THE LEACHATE. THIS COOPERATION, WITH BEFORE AND AFTER TREATMENTS, WILL ALLOW US TO STUDY APPLICATION CONCENTRATIONS AND CLEAN-UP TIME FRAMES.

OTHER ISSUES

I.I.I. HAS ACCESS TO THE ADJOINING 40 ACRES TO STUDY HAY PRODUCTION PER ACRE WITH THIS TREATED EFFLUENT, IN COMPARISON TO CONVENTIONAL FERTILIZATION.

Project Milestones:

Dates:

CELLS AND SYSTEM CONSTRUCTION	05/2000
FIELD STUDY FOR CONTAMINATES	06/2000
TREATMENT OF LEACHATE	06/2000
SAMPLING & TEST RESULTS BEGIN	08/2000
ANALYSIS RESULTS COMPLETED	02/2001
LEACHATE FIELD APPLICATION	04/2001
DRAFT REPORT	07/2001
FINAL REPORT	11/2001

☐ Project Addresses Environmental Justice

If So, Description of How:

☒ Project Addresses Education/Outreach

If So, Description of How:

THE RESULTS OF THIS PROJECT WILL BE USED TO EDUCATE THE SCIENCE STUDENTS OF LAKE SUPERIOR STATE UNIVERSITY. IN ADDITION, THE RESULTS OF THIS PROJECT WILL BE SHARED WITH THE SOLID WASTE INDUSTRY. ENVIRONMENTAL AGENCIES, WITH THESE RESULTS, WILL BE ABLE TO SHOW A POSITIVE SOLUTION TO AN ONGOING ENVIRONMENTAL PROBLEM.

Project Budget:

	Federal Share Requested (\$)	Applicant's Share (\$)
Personnel:	38,120	0
Fringe:	0	0
Travel:	10,000	500
Equipment:	35,000	0
Supplies:	29,800	0
Contracts:	77,800	7,635
Construction:	0	0
Other:	10,999	2,250
Total Direct Costs:	201,719	10,385
Indirect Costs:	0	0
Total:	201,719	10,385
Projected Income:	0	0

Funding by Other Organizations (Names, Amounts, Description of Commitments):

5.1% OF THE ENTIRE PROJECT COSTS WILL BE PROVIDED IN CASH OR BY IN-KIND CONTRIBUTIONS AND OTHER NON-CASH SUPPORT FROM I.I.I.. I.I.I. WILL ALSO PROVIDE ADDITIONAL STAFF TIME, AS NEEDED, BEYOND THE SALARY AMOUNT DESIGNATED IN THE BUDGET.

Description of Collaboration/Community Based Support:

FIELD SUPPORT WILL BE NEEDED FROM I.I.I. AND ITS CONTRACTORS. ACADAMIA, SAMPLING AND TESTING SUPPORT WILL COME FROM LAKE SUPERIOR STATE UNIVERSITY INSTRUCTORS AND STUDENTS. IT IS OUR INTENT TO HAVE THIS PROJECT BE AN ONGOING AID IN EDUCATION FOR LAKE SUPERIOR STATE UNIVERSITY.